

Art Unit: 1648

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AMBS (RCE FILED 03/21/05)

CET (03/29/05)

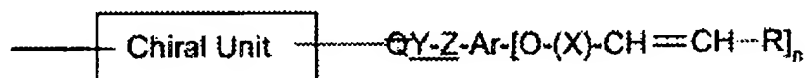
Claims 1-20 (Canceled)

**21. (Previously Presented)** A supported cross-linked chiral compound obtainable from a chiral compound according to claim 60, by physical deposition on a support.

Claims 22-24 (Canceled)

**25 - 59 (Canceled)**

60. (Currently Amended) A cross-linked chiral compound made by reacting at least one functional group of at least one chiral unit with a compound of the formula I:  $[RCH=CH-(X)-O]_n-Ar-QZY$ , to create a polymerizable precursor:

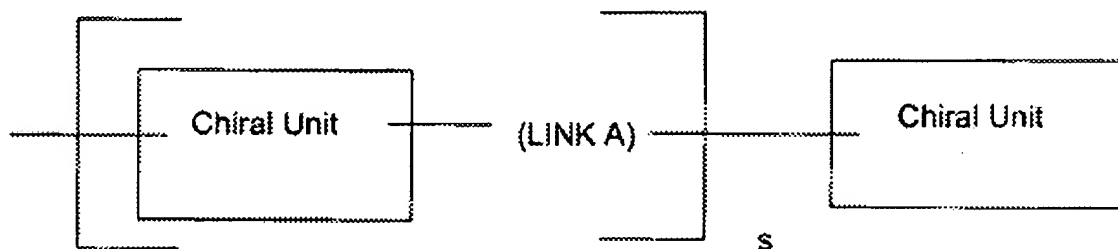


and polymerizing the precursor to create a cross-linked chiral compound where:

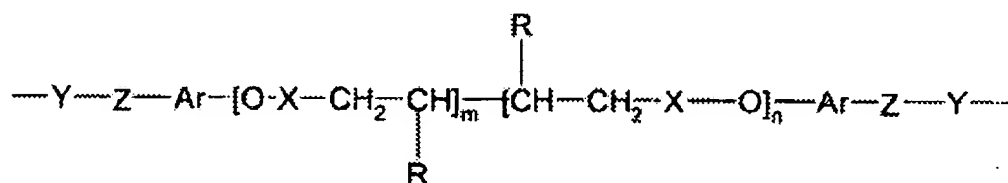
- chiral unit is a monomeric, oligomeric, cyclooligomeric or polymeric chiral radical unit and wherein the radical unit optionally comprises a primary or secondary amine function or a primary, secondary or tertiary hydroxyl function or a sulphhydryl function and in which all or a portion of these functions have optionally been modified to the ester, amide, urea, carbamate, thioester or thiocarbamate wherein the chiral unit optionally has 2 or more functional groups reactable with a compound of formula I or a compound linkable to a support;
- ~~Q is a group which is reactive towards a hydrogen carried by a heteroatom selected from the group consisting of oxygen, nitrogen and sulphur, or a precursor of such a group;~~
- Ar is an arylene or polyarylene optionally substituted with at least one group selected from the group consisting of alkyl, alkoxy, hydroxyl, trihalogenoalkyl, silyl, thiol, amino, aminoalkyl, amide, nitro, nitrosamino, N-amino, aldehyde, acid and ester groups;
- X is a linear alkylene group carrying more than one carbon atom, a branched alkylene group, or an arylene group, optionally substituted with at least one group selected from the group consisting of alkyl, alkoxy, hydroxyl and trihalogenoalkyl groups;
- R is hydrogen, a linear or branched alkyl group, a linear or branched alkoxy group, a hydroxyl or an aryl group, optionally substituted; and
- n is in the range 1 to 20;
- Y is a sulphur or oxygen atom or an amino group; and
- Z is a  $-CH_2$ -group, a  $-CO$ -group,  $-NHCO$ -group or a  $-NH-CS$ -group.

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61. (Currently Amended) A cross-linked chiral compound according to claim 60 wherein the polymerizable precursor reacts to create a LINK A between two chiral units:



wherein LINK A is:



where the chiral unit, Ar, X and R are defined as in claim 60 and

- Z is a -CH<sub>2</sub>- group, a -CO- group, a -NH-CO- group, or a -NH-CS- group;
  - m is 1 - 20;
  - n is 1 - 20;
  - s is at least 1 and less than 20000; and
- Y is a sulphur or oxygen atom or the an amino group.

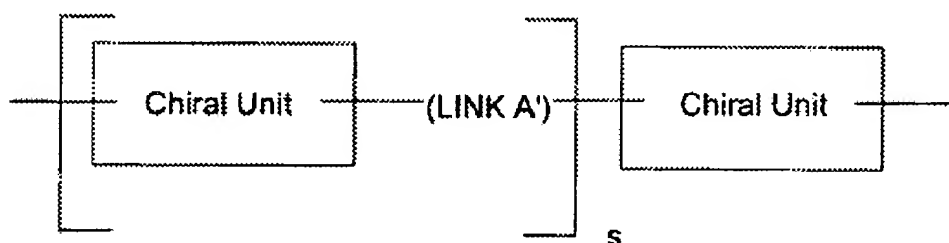
**62. (Previously Presented)** A hydrosilylated compound made by hydrosilylating a polymerizable precursor of a chiral compound according to claim 60 with a silane of the formula  $(R_1, R_2, R_3)Si-H$ ; where

$R_1$  is hydrogen, an alkoxy group, a halogen, or an amino or alkylamino group; and

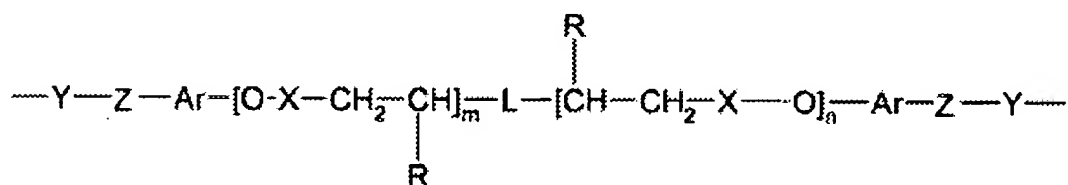
$R_2$  and  $R_3$ , which may be identical to or different from  $R_1$  to transform at least a portion of the alkenyl moieties

$R-CH=CH-$ , are alkoxy, hydroxyl, trihalogenoalkyl, linear or branched alkyl or aryl groups.

**63. (Currently Amended)** A cross-linked compound according to claim 60 wherein the hydrosilylated polymerizable precursor reacts to create a LINK A' between two chiral units:



where LINK A' is:



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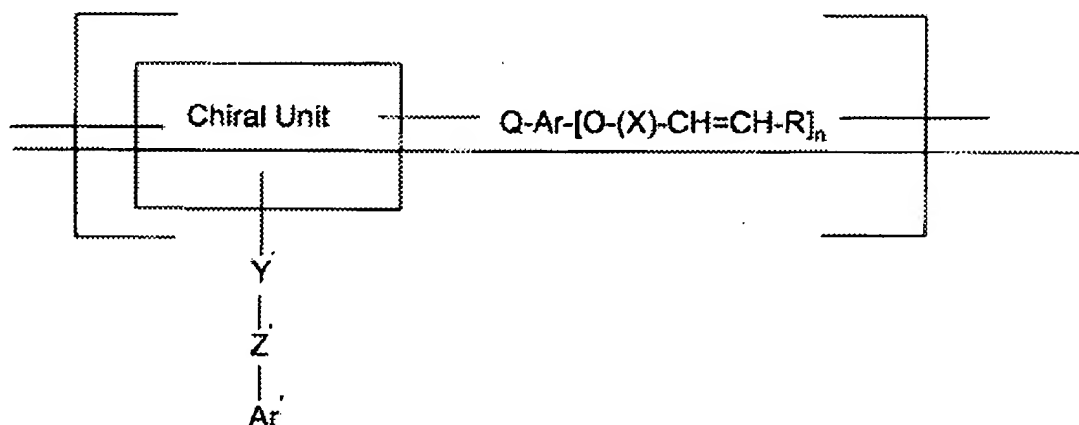
where the chiral unit, Ar, X and R are defined as in claim 60 and

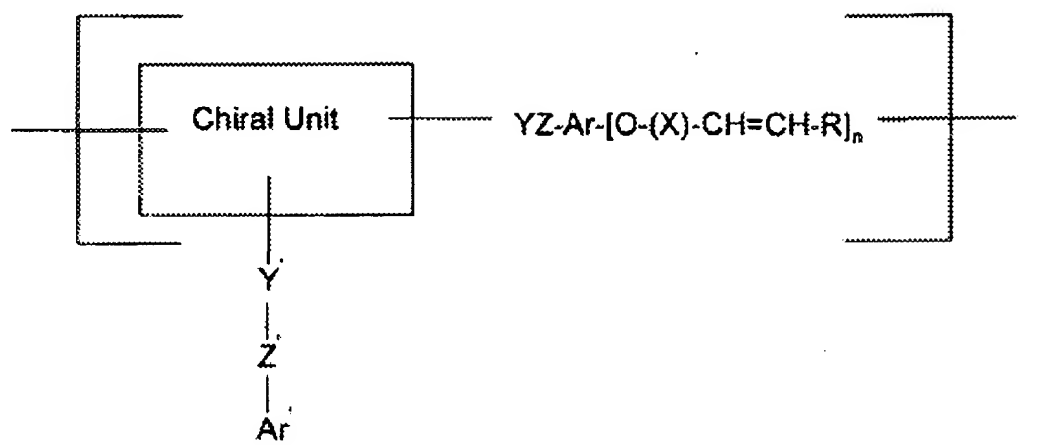
- Z is a  $-\text{CH}_2-$  group, a  $-\text{CO}-$  group, a  $-\text{NH}-\text{CO}-$  group, or a  $-\text{NH}-\text{CS}-$  group;
- m is 1-20;
- n is 1-20;
- s is at least 1 and less than 20000;
- L is a silicylene; and
- Y is a sulphur or oxygen atom or ~~the~~ an amino group.

64. (Currently Amended) A cross-linked compound, made by reacting the at least one chiral unit according to claim 60 with:

a compound of the formula I:  $[\text{R}-\text{CH}=\text{CH}-(\text{X})-\text{O}]_n-\text{Ar}-\underline{\text{ZY}}-\text{Q}$  where R, X, n, Ar, and Q are defined as in claim 60, and

a compound of the formula II:  $\text{Ar}'-\text{Z}'$  to make a polymerizable precursor of the formula III where Ar' is an aryl or polyaryl group optionally substituted by at least one alkyl and Z' is a  $-\text{CH}_3$  group, a  $-\text{COH}$  group, a  $-\text{NCO}-$  group, or a  $-\text{NCS}-$  group:

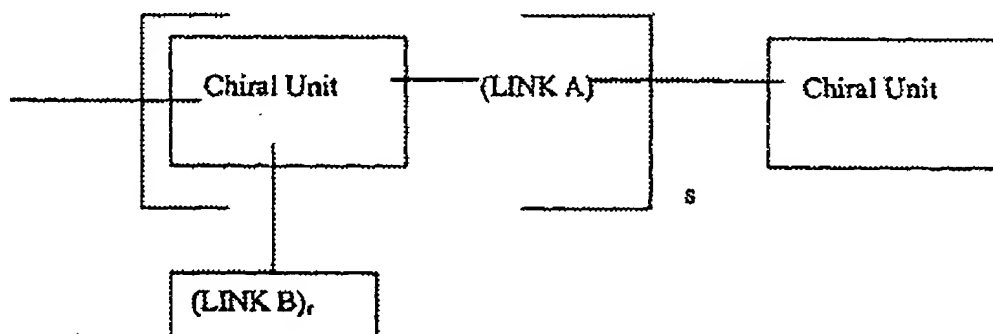




where:

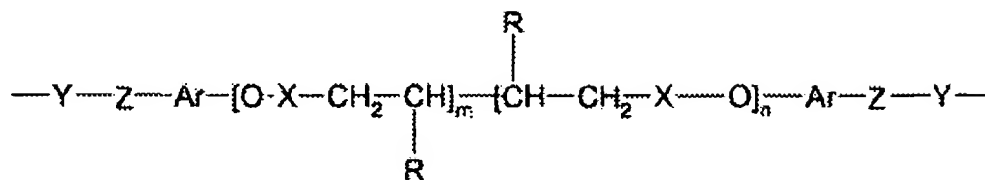
- Y' is a sulphur or oxygen atom, or ~~the~~ an amino group; and
- Z' is a  $-CH_2-$  group, a  $-CO-$  group, a  $-NH-CO-$  group, or a  $-NH-CS-$  group; and
- Ar' is aryl or polyaryl group.

65. (Currently Amended) A cross-linked chiral compound linked to a support, made by reacting and polymerizing a polymerizable precursor of the formula III as in claim 64, to make a cross-linked chiral compound linked to a support:



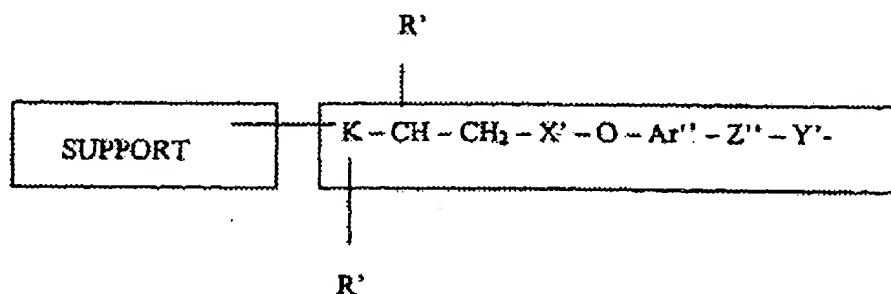
wherein LINK A is:

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where the chiral unit, Ar, X and R are defined as in claim 60 and

- Z is a -CH<sub>2</sub>- group, a -CO- group, a -NH-CO- group, or a -NH-CS- group;
- m is 1 -20;
- n is 1 — 20;
- r is ≥ 1;
- s is at least 1 and less than 20000; and
- Y is a sulphur or oxygen atom or the an amino group; and wherein LINK B is:

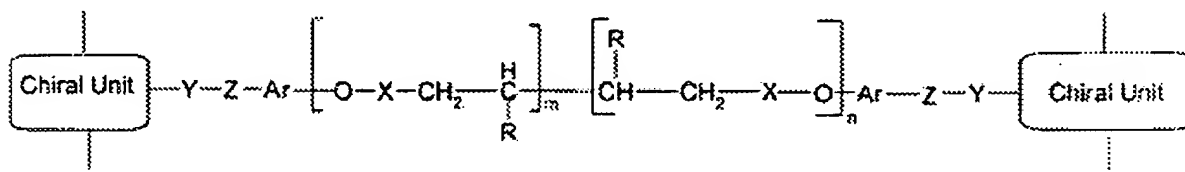


where:

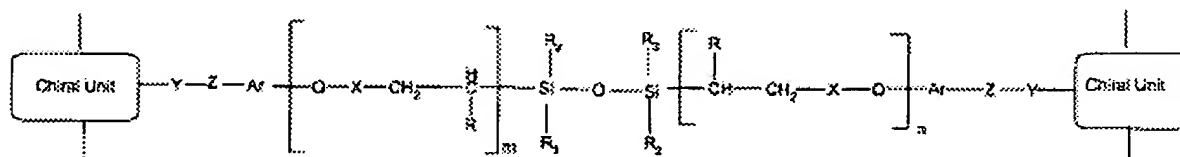
- X' is alkylene or arylene;
- Y' is a sulphur or oxygen atom or the an amino group;
- Z'' is a -CH<sub>2</sub>-CH<sub>2</sub>- group, a -CO- group, a -NH-CO- group, or a -NH-CS- group;
- Ar'' is an arylene or a polyarylene group;
- K is a single bond, a siloxane, or a silane wherein, if K is a single bond, R' is not present in LINK B;
- R' is an alkyl group or hydrogen; and
- "support" is an organic or mineral support; functionalized ~~functionalised~~ by an alkene or a hydrogenosilane or a sulphhydryl.

**66. (Previously Presented)** A crosslinked chiral compound according to claim 61, in which the chiral compound is polymerized by cross-linking at least a portion of the alkenyl moieties to obtain polymer beads which essentially constitute a chiral support.

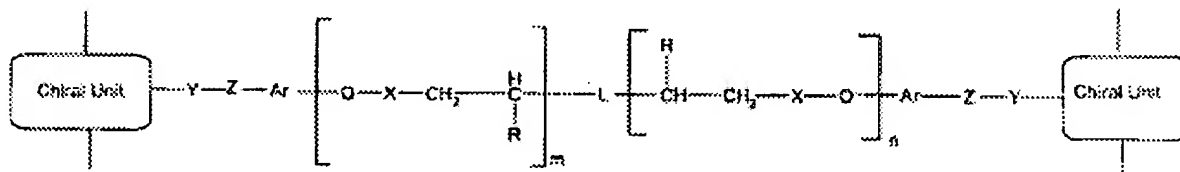
**67. (Previously Presented)** A cross-linked chiral compound according to claim 61, having the following formula:



**68. (Currently Amended)** A cross-linked chiral compound according to claim 63, having the following formula formulae:



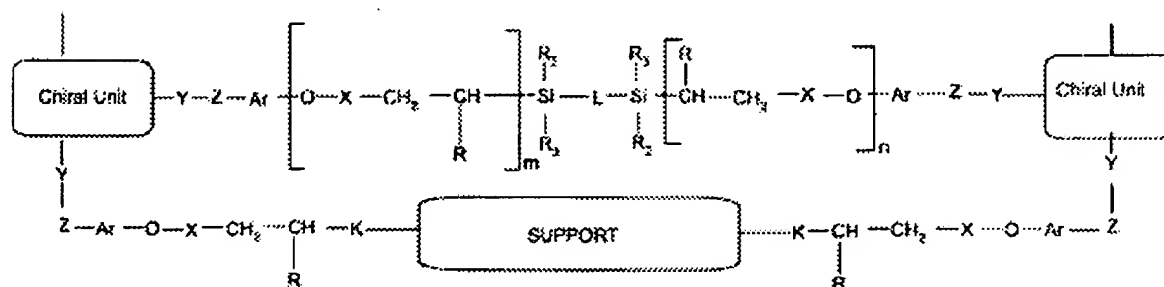
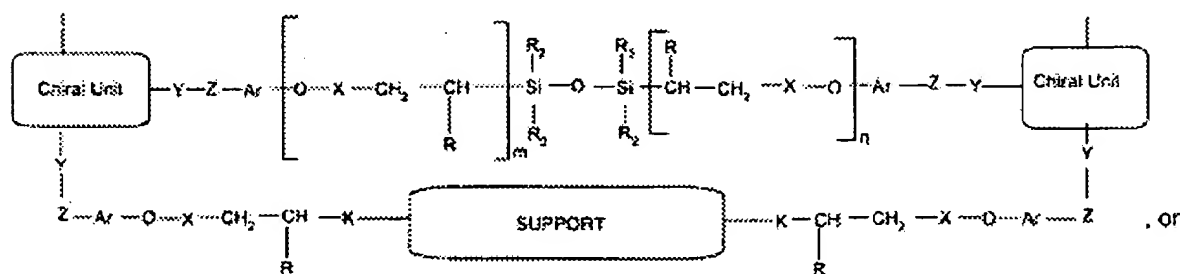
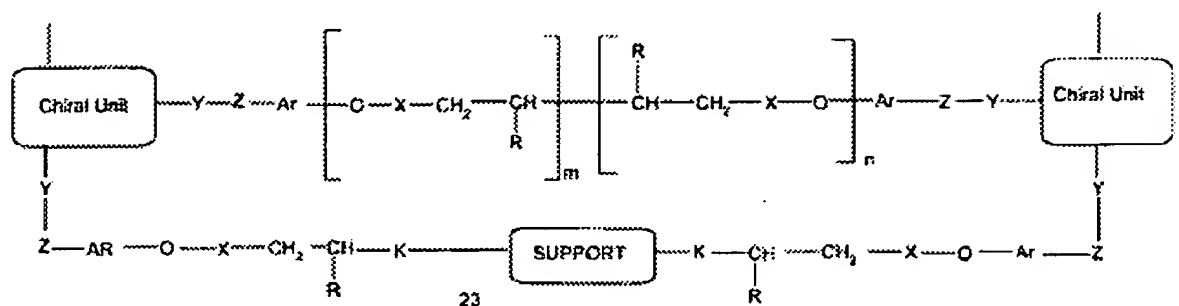
or



**69. (Currently Amended)** A cross-linked chiral compound having the following formula formulae:



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where:

- a chiral unit is a monomeric, oligomeric, cyclooligomeric or polymeric chiral ~~radical~~ unit and wherein the unit ~~radical~~ optionally comprises a primary or secondary amine function or a primary, secondary or tertiary hydroxyl function or a sulphhydryl function and in which all or a portion of these functions have optionally been modified to the ester, amide, urea, carbamate, thioester or thiocarbamate wherein the chiral unit optionally has 2 or more functional groups reactable with a compound of formula I or a compound linkable to a support;
- Ar is an arylene or polyarylene optionally substituted with at least one group selected from the

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- group consisting of alkyl, alkoxy, hydroxyl, trihalogenoalkyl, silyl, thiol, amino, aminoalkyl, amide, nitro, nitrosamino, N-amino, aldehyde, acid and ester groups;
- X is a linear alkylene group carrying more than one carbon atom, a branched alkylene group, or an arylene group, optionally substituted with at least one group selected from the group consisting of alkyl, alkoxy, hydroxyl and trihalogenoalkyl groups;
  - R is hydrogen, a linear or branched alkyl group, a linear or branched alkoxy group, a hydroxyl or an aryl group, optionally substituted;
  - Z is a  $-CH_2-$  group, a  $-CO-$  group, a  $-NH-CO-$  group, a  $-NH-CS-$  group;
  - m is 1 – 20;
  - n is 1 – 20;
  - Y is a sulphur or oxygen atom or the an amino group;
  - L is a silicylene;
  - $R_2$  and  $R_3$  are independently, alkoxy, hydroxyl, trihalogenoalkyl, linear or branched alkyl or aryl groups;
  - K is a single bond, a siloxane, or a silane; and
  - "support" is an organic or mineral support; functionalized by an alkene or a hydrogenosilane or a sulphhydryl.

70. (Currently Amended) A supported cross-linked chiral compound obtainable from a chiral compound according to claim 65 and a support, said support having been reacted with at least one group selected from the group consisting of alkoxy, halogeno or aminosilane groups, said group also comprising a function moiety selected from the group consisting of  $-SH$ ,  $-SiH$  and or  $-CH=CH-$   $-CH=CH_2-$ .

71. (Previously Presented) A supported cross-linked chiral compound comprising at least one chiral compound according to claim 61 and at least one support.

72. (Previously Presented) A supported cross-linked chiral compound according to claim 65, in which the chiral compound is chemically bonded to said support, using at least one covalent chemical bond.

73. (Previously Presented) A supported cross-linked chiral compound obtainable from a chiral compound according to claim 60 by polymerization, generally by cross-linking at least a portion of the alkenyl moieties of said chiral compound to obtain polymer beads.

74. (Previously Presented) A supported cross-linked chiral compound comprising beads of a chiral compound according to claim 61.

75. (Currently Amended) A cross-linked chiral compound according to claim 61-60, in which group Q is selected from the group formed by one of the following groups:  
~~-N(C=O)-N=C=O or a precursor thereof~~; -NH<sub>2</sub> or -CON<sub>3</sub>; -COCl or its precursor; -COOH; ~~N(C=S)~~  
~~-N=C=S~~; or -CH<sub>2</sub>Y, where Y is Cl, Br, I, methylsulphonyloxy, para-toluenesulphonyloxy, or 3,5-dimethylphenylsulphonyloxy.

76. (Previously Presented) A cross-linked chiral compound according to claim 61, in which said chiral unit of a product is a glycosidic unit of a product selected from the group consisting of holosides, heteroholosides, oligosides, cyclooligosides, heterooligosides, polyosides, heteropolyosides, enzymes and proteins.

77. (Canceled)

78. (Previously Presented) A cross-linked chiral compound according to claim 64, in which said chiral unit of a product is a glycosidic unit of a product selected from holosides, heteroholosides, oligosides, cyclooligosides, heterooligosides, polyosides, heteropolyosides, enzymes and proteins.

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**79. (Previously Presented)** A cross-linked chiral compound according to claim 60, in which the chiral compound is polymerized by cross-linking at least a portion of the alkenyl moieties to obtain polymer beads which essentially constitute a chiral support.

**Please add the following new claim:**

**--80. (New)** A cross-linked chiral compound according to claim 65, wherein the support is selected from the group consisting of gel type supports of native and modified silica, oxides of zirconia, magnesium, aluminium and titanium, glass beads, carbons, and any organic polymers.--